DOCUMENT RESUME

ED 067 601 CG 007 542

AUTHOR Oles, Henry J.
TITLE A Multivariate Approach to the Study of Variables Associated with Student Use of Deception.
PUB DATE 72
NOTE 11p.; Paper presented at the Southwestern Psychological Association Convention (Oklahoma City, Oklahoma, April 20-22, 1972)

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Academic Performance; Behavioral Science Research; *Elementary School Students; *Instructional Materials; Mathematics Materials; Statistical Analysis; *Student Attitudes; Student Behavior; *Student Reaction

ABSTRACT

This study was designed to identify some of the variables that may be associated with student use of deception. Data for a broad introductory analysis of the problem was collected on 238 third, fourth, and fifth grade students, during the second half of the 1970-71 school year, who were enrolled in a school using Individually Prescribed Instruction (IPI). Data was collected only for the IPI math program. During a four month period, a measure was obtained for each student of the degree to which they used deception in self-scoring their own math work pages. It involved deliberately inserting incorrect but plausible answers in the students' self-scoring keys and then the careful evaluation of the way in which each student handled the error. The results of this study indicated some evidence of inconsistencies between the student's attitude toward misusing self-scoring opportunities and their actual behavior. (Author/BW)

ED 067601

A MULTIVARIATE APPROACH TO THE STUDY OF VARIABLES ASSOCIATED WITH STUDENT USE OF DECEPTION

Dr. Henry J. Oles
Southwest Texas State University

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

CG 007 542

A Paper Presented To the 1972 Convention of the
Southwestern Psychological Association
Oklahoma City, Oklahoma

FILMED FROM BEST AVAILABLE COPY

INTRODUCTION

One of the most challenging problems in education today is designing new curricula and methods of instruction that adapt instruction to the learner. The immense amount of material to be learned within a relatively short period of time, no longer permits us to be satisfied with a teaching approach that is geared to the "average" pupil and ignores individual differences.

The Learning Research and Development Center of the University of Pittsburgh has been developing since 1964 a system of individualized instruction called Individually Prescribed Instruction (IPI). The IPI procedure permits each student to proceed through "...a sequence of learning activities or experiences at a pace and in a way suited to his interests and abilities." (Lindvall, 1967)

One of the principle goals of IPI is to develop student autonomy or the ability to be self-directed and self-evaluative in an attempt to produce an adult who will be able to manage his own continuing education to meet the needs of the twentieth and twenty-first centuries. One vehicle for reaching this goal is to prepare the student to evaluate his own work and to plan his program according to his own self-evaluation. Preliminary research has shown, however, that many students are misusing the opportunities provided by the program to self-evaluate or self-score their own work.

Relatively little research has been conducted on students' use of deception since the early 1900's. However, the development of new educational programs like IPI that emphasize individualized self-instruction and self-evaluation create a need for a more refined understanding of the problem. This study was therefore designed to identify some of the variables that may be associated with student use of deception.

METHOD

Data for a broad introductory analysis of the problem was collected on 238 third, fourth, and fifth grade students during the second half of the 1970-71 school year who were enrolled in a school using Individually Prescribed Instruction. Data was collected only for the IPI math program.

During a four month period, a measure was obtained for each student of the degree to which they used deception in self-scoring their own math work pages. It involved deliberately inserting incorrect but plausable answers in the students' self-scoring keys and then the careful evaluation of the way in which each student handled the error. For example, the student was given 3 points if he deliberately erased his answer and replaced it with the incorrect answer shown on the key. Two points were given when the student simply ignored the discrepancy between his answer and the one shown on the key and did not mark the problem wrong. One point was given when he marked the problem wrong but then simply inserted the incorrect answer when he redid his work. Zero points were given when he found his work to be incorrect, marked it wrong, attempted to redo it and then being unable to get the answer shown on the key, sought the assistance of the teacher or teacher aide. Table 1 shows the percentage of each type of rating.

- -

Insert Table 1

- -

A semantic differential attitude scale, "How I Feel", specially adapted from an instrument first developed and used by Research for Better Schools, Inc. of Philadelphia was administered. The scale (Table 2)

- -

Insert Table 2

- -

consisted of 11 concepts, each of which was evaluated by the same set of six bipolar adjective pairs chosen from Osgood's evaluative dimension. Nine of the scales were actually scored while two were used to check validity.

The ratings on the six bipolar adjective pairs for each concept were summed and the resulting sums were subject to a factor analysis with varimax rotation which yielded five factors.

- -

Insert Table 3

- -

Insert Table 4

- -

FACTOR I: General School Evaluative Factor (28% of variance)

FACTOR II: Propensity To Copy From Key (13% of variance)

FACTOR III: Need For Supervision And Assistance (12% of variance)

FACTOR IV: General Negativism (15% of variance)

FACTOR V: Need For Success (12% of variance)

A five element factor score vector was computed from the rotated factor pattern matrix for each student for use in the final analysis. The following additional data were collected for each student.

1. Most recent Otis-Lennon IQ score
2. Scores on the spring 1971 mathematics concepts and computation sub tests of the Stanford Achievement Test
3. A rate of progress measure (How quickly the student was moving through the curriculum objectives)
4. The teacher's intuitive rating of the students self-scoring accuracy
5. The percentage of teacher graded major tests the student passed
6. Grade level
7. Sex

RESULTS

The entire set of data was submitted to multivariate analysis of variance. There were no meaningful differences that related to the problem on any of the variables when the subjects were divided by grade. When partitioned by sex, teachers generally thought that the male students misused self-scoring more than females. Males also showed more negative attitudes toward supervision and passing tests than females.

A principal components analysis with varimax rotation on the 13 variables extracted a total of six significant factors with Eigenvalues greater than one which together accounted for 68.5% of the variance as shown in tables 5 and 6.

- -

Insert Table 5

- -

Insert Table 6

- -

The first three factors, accounting for 44% of the variance were especially interesting. Factor one (23% of the variance) was basically an achievement factor. Factor two (10% of the variance) indicated that students who had positive attitudes toward misusing self-scoring tended to have lower IQ's, lower scores on standardized achievement tests, a lower placement level in the curriculum, were judged by the teacher as a likely candidate to misuse self-scoring, and indeed had a greater tendency to misuse self-scoring. The structure for factor three (9.7% of the variance) demonstrated that although students may express negative attitudes toward improper self-scoring and positive attitudes toward their school, teacher, and themselves, they may still misuse the self-scoring process.

CONCLUSIONS

This study can be considered an initial attempt to the development of an understanding of the factors that may account for poor self-evaluation in students using individualized programs in which there are few apparent reasons for the student to 'cheat'. It has shown some evidence of inconsistencies between the student's attitude toward misusing self-scoring opportunities and their actual behavior.

REFERENCES

Cooley, William W. and Lohnes, Paul R. Multivariate Procedures for the Behavioral Sciences, (New York: John Wiley and Sons, Inc., 1962).

Hartshorne, H. and May, M.A. Studies In The Nature Of Character, (New York: Macmillan Co., 1928)

Lindvall, C.M., Cox, Richard C., with Bolvin, John O. "The IPI Evaluation Program," AERA Monograph Series (Chicago: Rand McNally and Co., 1970)

Lohnes, Paul Measuring Adolescent Personality, (Interim Report I, PROJECT •TALENT) Pittsburgh: University of Pittsburgh, 1966.

Oles, Henry J. "An Analysis of Self-Scoring Behavior in Students Using Individually Prescribed Instruction," Unpublished Doctoral Dissertation, University of Pittsburgh, 1971.

Osgood, C., Suci, G., and Tannenbaum, P. The Measurement of Meaning, (Urbana, Illinois: University of Illinois Press, 1957).

"What Do You Think," Unpublished study, Research For Better Schools Inc., Philadelphia, Pennsylvania, 1968.

TABLE 1

PERCENTAGE OF STUDENTS MISUSING THE SELF-SCORING KEYS

Type of key misuse	Percentage of total ratings
0	12.1%
1	30.0%
2	39.5%
3	18.5%

TABLE 2

ATTITUDE QUESTIONNAIRE

1. Working On Math Problems Is	Happy-Sad
2. My School Is	Interesting-Boring
3. Being Punished For No Reason Is	Useless-Useful
4. Scoring My own Math Work Pages	Good-Bad
5. Taking A Math CET Is	Honest-Dishonest
6. IPI Math Class Is	Unfair-Fair
7. I Am	
8. My Math Teacher Is	
9. Being Rewarded For Doing Something Well Is	
10. Failing A Math CET (test) Is	
11. Copying Workpage Answers From The Key Is	

TABLE 3

PRINCIPAL COMPONENTS ANALYSIS OF THE SUMMATION SCORES FOR EACH OF THE NINE CONCEPTS OF THE SEMANTIC DIFFERENTIAL

Factor	*Eigenvalue*	*Percent Trace*	*Cum Percent*	*N.D.F.*	*Chi-Square*
1	*3.1224*	*34.7*	*34.7*	*36*	*502.43*
2	*1.2756*	*14.2*	*48.9*	*28*	*192.29*
3	*1.1260*	*12.5*	*61.4*	*21*	*139.30*
4	*0.8598*	*9.6*	*70.9*	*15*	*87.89*
5	*0.8045*	*8.9*	*79.9*	*10*	*61.27*

TABLE 4

ROTATED FACTOR PATTERN FOR SEMANTIC DIFFERENTIAL SUMMATION SCORE

Concept	FACTORS I	II	III	IV	V	h^2
Working On Math Problems Is	0.694	-0.382	-0.171	0.027	-0.202	.698
My School Is	0.674	-0.211	-0.028	-0.411	0.015	.669
Scoring My Own Math Worksheets	0.201	-0.066	-0.907	-0.155	-0.037	.892
Taking A Math CET Is	0.794	0.236	-0.292	0.070	0.041	.778
IPI Math Class Is	0.839	0.037	-0.009	-0.225	0.046	.759
I Am	-0.011	0.189	-0.360	-0.788	0.146	.808
My Math Teacher Is	0.454	-0.268	0.112	-0.702	-0.146	.805
Failing A Math CET Is	0.007	0.156	-0.024	0.029	-0.958	.945
Copying Work Page Answers From The Key Is	-0.016	0.896	0.034	0.008	-0.179	.836
% Trace	28%	13%	12%	15%	12%	

TABLE 5

PRINCIPAL COMPONENTS RESULTS FOR 13 VARIABLES

Factor	Eigenvalue	Percent Trace	Cum Percent	N.D.F.	Chi-Square
1	3.0472	23.4	23.4	78	498.72
2	1.3340	10.3	33.7	66	298.82
3	1.2639	9.7	43.4	55	271.39
4	1.1171	8.6	52.0	45	243.49
5	1.0821	8.3	60.3	36	222.39
6	1.0560	8.1	68.5	28	198.00

TABLE 6

ROTATED FACTOR PATTERN FOR ALL 13 VARIABLES

Concepts	FACTORS I	II	III	IV	V	VI	h^2
1 Attitude Factor I	0.031	-0.023	0.031	0.092	0.007	-0.894	.810
2 Attitude Factor II	-0.010	0.301	-0.733	0.149	-0.079	0.142	.676
3 Attitude Factor III	0.037	0.091	0.030	-0.091	0.894	-0.002	.819
4 Attitude Factor IV	-0.042	0.081	0.645	0.308	0.093	0.360	.658
5 Attitude Factor V	0.009	-0.013	0.022	-0.768	0.242	-0.017	.648
6 IQ	0.281	-0.716	0.021	-0.120	-0.127	0.180	.656
7 Self-scoring Accuracy	-0.063	0.381	0.522	-0.147	-0.222	-0.135	.510
8 Teacher Rating	-0.098	0.779	-0.059	-0.031	0.023	0.190	.658
9 Math Computation	0.828	-0.167	-0.026	0.145	0.142	0.023	.756
10 Math Concepts	0.729	-0.476	-0.091	0.154	-0.005	-0.056	.792
11 Percentage CETs Passed	0.267	0.015	-0.025	0.495	0.215	-0.172	.393
12 Number of Skills	0.614	0.333	0.091	-0.329	-0.275	-0.080	.686
13 Placement	0.896	-0.170	-0.028	0.063	0.024	-0.016	.837
% Trace	19.7	13.6	9.6	8.9	8.3	8.3	